



fir plywood

**invites fresh design . . .
meets changing needs**

1954 CATALOG

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AMERICA'S BUSIEST BUILDING MATERIAL

fir plywood is
America's busiest
building material

plywood does more different building jobs than any other material. It combines structural and decorative capabilities in one top quality product. It permits choice of design in harmony with decoration and construction detail to meet the needs of the user. It is a traditional material—real wood in all its natural warmth and beauty—made stronger, more serviceable, more useful than wood in any other form.

plywood improves on wood by making possible larger panels that are stronger, more rigid, more durable, split-proof, shatterproof, light in weight and dimensionally stable.

selected Douglas fir logs are peeled to form precise wood veneers (or plys). These are cross-laminated into panels made up of an odd number of plys—3, 5, 7—placed so the grain of one ply is at right angles to adjacent plys. The cross-bonding is done under pressure with highly water-resistant (INT-DFPA) or 100% waterproof (EXT-DFPA) adhesives.

criss-cross construction capitalizes the extra strength of wood along the grain in both directions. That's why plywood is strong and rigid **along** the panel and **across** the panel. That's why, pound for pound, it is one of the strongest materials known. That's why, too, a $\frac{1}{4}$ " or $\frac{5}{16}$ " panel will often do the work of thicker and heavier boards or other materials.

it is not necessary to discount for loss when figuring the amount of plywood for a job. Fir plywood panels are factory-seasoned, never "green." They are precision produced and laboratory tested for consistent quality. They are marketed in exact dimensions. The exact size of panels not only minimizes waste, both in figuring and finishing jobs; it speeds installation, saves time.

the 4'x8' panel—[three-fourths of all fir plywood] has width and length dimensions which are multiples of any practical working module in house construction. This speeds construction, saves up to 75% in handling and labor costs.

plywood is cut, shaped and fastened with ordinary carpentry tools; holds nails well. A quality product, it deserves reasonable care, but needs no special handling; plywood does not split like ordinary lumber.

fir plywood is a standardized product, available everywhere in several panel grades, various thicknesses and a choice of sizes. It is sold through retail lumber dealers everywhere.

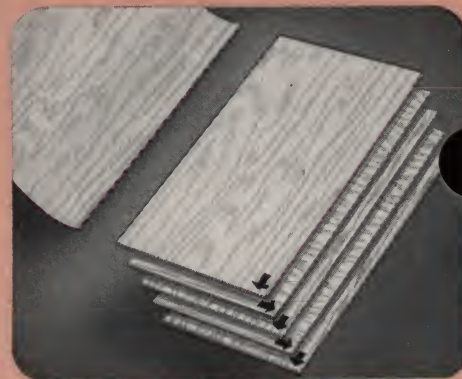
plywood has been accepted for more than 15 years in the Uniform Building Code. Plywood also is accepted by the Basic Code of the Building Officials Conference of America, the Southern Building Code, and many individual city, county and state codes.

In general, $\frac{3}{8}$ " Exterior fir plywood (EXT-DFPA) is accepted for siding. Plywood is accepted as structural sheathing without bracing and plywood is accepted for both roof sheathing and subflooring.

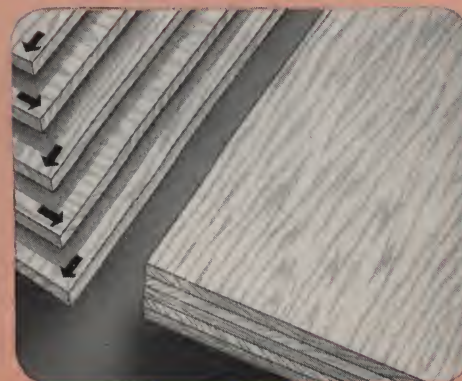
this catalog gives basic information about fir plywood to both specifiers and users of the panels. Additional data, including the U. S. Commercial Standard CS45-48, will be provided upon request. The handbook "Technical Data on Plywood" is available to architects and engineers without charge from Douglas Fir Plywood Association.



1. peeled in precise wood plys



2. cross-bonded for 2-way strength



3. ... across panel and along panel



1. Levittown house, "dri-bilt" with plywood



2. build faster, stronger with plywood



3. plywood subflooring resists racking

FHA and plywood . . . Provided FHA minimum property requirements are met for each use, FHA permits the use of plywood for all parts of houses . . . siding (Exterior plywood), interior walls and ceilings, wall and roof sheathing, and subflooring. Minimum FHA requirements follow in brief:

siding. Flat or lapped. Plywood must be of Exterior type and a minimum of $\frac{3}{8}$ " thick with studs 16" o.c.

wall sheathing. With studs 16" o.c., $\frac{1}{8}$ " plywood; for studs 24" o.c., $\frac{3}{8}$ " plywood is acceptable. Corner bracing may be omitted. Nail with 6d nails, 6" o.c. on all edges and 12" o.c. at intermediate bearings. When $\frac{1}{8}$ " sheathing is used, ring-barbed nails are required for applying asbestos cement shingles or siding, and ring-barbed nails or nailing strips in applying wood shingles. Building paper may be omitted for most siding materials.

roof sheathing. Here also $\frac{1}{8}$ " plywood is accepted for rafter spacing 16" o.c. for both wood and asphalt shingles, but former must be applied with nailing strips unless plywood $\frac{1}{2}$ " thick is used. The $\frac{3}{8}$ " plywood is accepted, too, for rafters 24" o.c. Install plywood with grain of outer plys across rafters. *Plywood roof sheathing, unless of Exterior type, shall have no surface or edge exposed to the weather.* NOTE: A new FHA ruling accepts $\frac{1}{2}$ " plywood on flat roofs with rafters spaced 24" o.c.

subflooring. Most popular subflooring construction with fir plywood uses $\frac{5}{8}$ " panels installed with outer plys of panels at right angles to joists spaced 16" o.c. When finished floor is 25/32" wood strip, no blocking is required. When finish floor is of less than 25/32" wood or is block, parquet, linoleum, composition, rubber or ceramic tile, blocking is required under panel edges at right angles to joists; nailing should be 6" o.c. at all edges and 10" o.c. at intermediate members.

When installation requirements are followed, FHA permits 20" joist spacing with $\frac{5}{8}$ " plywood; $\frac{1}{2}$ " plywood subflooring on joists at 16" o.c. also is permitted.

underlayment. $\frac{1}{4}$ " plywood is accepted; $\frac{3}{8}$ " usually recommended.

interior finish. $\frac{1}{4}$ " minimum thickness of plywood is accepted if studs are 16" o.c. If $\frac{3}{8}$ " plywood is used, stud spacing may be 24" o.c.

"dry-bilt with plywood." Greatest over-all structural superiority is achieved when plywood is used throughout construction; however, specific benefits are derived from each single plywood application. With plywood walls there is no dryout period to consider.

1. Levitt & Sons, builders. 2. Charles Steinbacka, architect. 3. Richard Sundeleaf, AIA, architect; Julius Zink, builder.

**an engineered material...
fabricated in types, grades and
sizes to meet building and
industrial requirements,**

fir plywood is manufactured in two basic types: **Exterior** and **Interior**, and several appearance grades within each type.

type refers to the type of bond between plys. The adhesives bonding Exterior "type" panels are completely waterproof; improved glues in Interior type are highly moisture-resistant but NOT waterproof.

grade refers to the appearance quality of wood veneer in outer plys... face and back. In addition, there are certain minimum qualities of veneer used for inner plys.

Detailed data on the grades within each type of fir plywood are given in the table to the right.

Fir plywood is produced in strict accordance with U. S. Commercial Standard CS45-48 established through the National Bureau of Standards of the U. S. Department of Commerce which sets forth both rigid performance requirements and grade specifications.

registered grade-trademarks, shown on panels pictured on these pages, have been adopted by Douglas Fir Plywood Association mills and are placed on panels for positive identification. Specific grade names and distinctive designs are combined in most instances; for some grades, the identification consists of the type designation and letters indicating the appearance quality of outer plys. In all the trademarks, the letters "DFPA" indicate industry-wide maintenance of quality.

veneers used in fir plywood—Here are brief descriptions of the qualities of veneers used in plywood manufacture: **A**—Highest standard appearance quality veneer. Panels with an A face are smooth and paintable. Veneer may be of more than one piece, well joined and reasonably matched; neatly made repair patches are permitted as are shims, streaks and sapwood. No open defects permitted.

B—Smooth and paintable. Similar to A veneer but permits circular plugs, edges of which may be slightly rough. Also permitted are knots up to 1" if sound and tight, tight splits and slightly rough grain.

C—Principally used for inner plys and backs (some grades) of Exterior type. Permits knotholes up to 1", small borer holes, splits $\frac{1}{8}$ " or less, tight knots up to $1\frac{1}{2}$ ", various repair patches. (In all grades of Exterior plywood and in the Interior Ply-form grade, all inner plys are C veneer.)

D—Used only for Interior panels. Permits knotholes up to $2\frac{1}{2}$ ", pitchpockets, limited splits, various repair patches.

new panel products. Latest additions to the growing "family" of fir plywood panels are two types of **resin overlaid plywood**, **Texture One-Eleven**, and **Plyron**. Details of these products are given on page 8.

Exterior type plywood. The EXT-DFPA industry symbol branded on the panel edge identifies the outdoor type fir plywood manufactured with 100% waterproof phenolic resin adhesives. The rugged durability of this material makes it ideally suited for:

siding on residences and commercial buildings;
boat cabins, decks, hulls and bulkheads;
siding and lining in railroad cars;
outdoor storage units;
cold storage plants;
highway markers;
billboards;
displays;
signs.

Interior type plywood. Gluelines must pass stringent tests of repeated cycles of wetting and drying; they are not waterproof but are highly moisture-resistant. Used inside, where not permanently exposed to weather, the several grades of Interior plywood contribute to modern, efficient building practice and more comfortable, more livable houses in four ways:

1. Structural superiority in floors, walls and roofs;
2. Lasting beauty in paneled walls, ceilings;
3. Important savings in time and material;
4. Versatility for indoor storage units.

STANDARD STOCK SIZES AND GRADES OF EXTERIOR-TYPE* MOST COMMONLY AVAILABLE FROM DISTRIBUTORS

GRADE—TRADEMARKS®	Face	Back	Widths (Feet)**	Lengths (Feet)**	Thicknesses (Inches)**
EXT-DFPA • A-A For permanent outdoor uses where appearance of both sides is important. Outdoor furniture, certain fences and enclosures, signs, marine uses.	A	A	4	8	1/4, 3/8, 1/2, 5/8, 3/4
EXT-DFPA • A-B Uses similar to Exterior A-A panels but where appearance of one side less important. Alternate for EXT-DFPA • A-A.	A	B	4	8	1/4, 3/8, 1/2, 5/8, 3/4
EXT-DFPA • PLYSHIELD Siding of homes and buildings of all types. Also for soffits, breezeways, gable ends. For store fronts, highway stands. The versatile "one side" grade of Exterior plywood with waterproof bond.	A	C	4	8	1/4, 3/8, 1/2, 5/8, 3/4
EXT-DFPA • UTILITY As grade name indicates, a utility outdoor panel. Farm buildings.	B	C	4	8	1/4, 3/8, 1/2, 5/8, 3/4
EXT-DFPA • SHEATHING Unsanded grade with waterproof bond. Backing or rough construction.	C	C	4	8	3/8, 1/2, 5/8
EXT-DFPA • PLYFORM This is the grade of plywood specified when panels with waterproof bond are desired so concrete forms may be re-used and re-used until wood is literally worn away.	B	B	4	8	3/4

Other sizes than those in tables are standard, to meet building and industrial requirements, but not normally stocked.



these U. S. Pat. Off. registered grade-trademarks identify grades of Exterior Type fir plywood inspected by the Douglas Fir Plywood Association [DFPA].

*All grades are sanded both sides except EXT-DFPA Sheathing, Interior Plyscord and certain specialties. 3/8" and thinner panels have a minimum of three plies: 1/2" to 3/4" inclusive are 5-ply minimum; 7/8" and thicker are 7-ply minimum.

**About three-fourths of all fir plywood is of panels 4'x8'; all sizes shown are standard, but volume of panels of dimensions other than 4'x8' is small compared with quantity of 4'x8' plywood. The great majority of fir plywood is of panels 1/4" to 3/4" thick, inclusive.

STANDARD STOCK SIZES AND GRADES OF INTERIOR-TYPE* MOST COMMONLY AVAILABLE FROM DISTRIBUTORS

GRADE—TRADEMARKS®	Face	Back	Widths (Feet)**	Lengths (Feet)**	Thicknesses (Inches)**
INTERIOR • A-A For all interior applications where both sides to be in view. Cabinet doors, built-ins, furniture, displays, booth partitions.	A	A	3, 4	8	1/4, 3/8, 1/2, 5/8, 3/4
INTERIOR • A-B For all inside uses requiring one surface of highest appearance and opposite side solid and smooth. Alternate for A-A.	A	B	3, 4	8	1/4, 3/8, 1/2, 5/8, 3/4
PLYANEL The many-purpose, "one side" material for interior uses. Wall and ceiling paneling, built-ins, wainscoting, backing and underlayment, counters, fixtures, displays, cut-outs.	A	D	2 1/2, 3, 4	8	1/4, 3/8, 1/2, 5/8, 3/4
PLYBASE A base and backing material for interior use. Face also is solid, paintable.	B	D	4	8	1/4, 3/8, 1/2, 5/8, 3/4
PLYSCORD The unsanded sheathing or structural grade of fir plywood. Wall and roof sheathing, subflooring. Temporary enclosures, backing; containers, temporary partitions and construction barricades.	C	D	4	8	3/8, 5/16, 1/2, 5/8
INTERIOR PLYFORM The re-usable concrete form plywood for ease of form construction, smooth concrete surfaces. Glue bond is highly moisture resistant but NOT waterproof.	B	B	4	8	5/8, 3/4

Other sizes than those in tables are standard, to meet building and industrial requirements, but not normally stocked.



these U. S. Pat. Off. registered grade-trademarks identify grades of Interior Type fir plywood inspected by the Douglas Fir Plywood Association [DFPA].

nail bearing

Nail bearing is the vital property in the effectiveness of most sheathings and diaphragms. Plywood possesses this strength property to a high degree, even with nails close to panel edges.

Values in this table are average ultimates of 650 tests on standard commercial panels, nailed at the minimum edge distances that will develop maximum loads.

When the applied force is parallel to panel edges (as in a shear diaphragm) reduced edge-distance affects strength very little. With forces perpendicular to edges of members (as in a gusset plate), reducing plywood edge-distances one-half lowers load bearing value 27%-37%. Apply adequate safety factors before using the tabulated values for design.

NAIL BEARING LOADS

Ultimate Loads at Standard Plywood Edge-Distances for Laterally Loaded Nail Joints. (For stud edge-distances one inch or greater.)

PLY-WOOD THICK-NESSSES	NAIL SIZE							
	6d COM.		8d COM.		10d COM.		16d COM.	
	Load	Plywood Edge-Distance	Load	Plywood Edge-Distance	Load	Plywood Edge-Distance	Load	Plywood Edge-Distance
5/16"	335 #	1/2"	420 #	5/8"				
3/8"	345 #	1/2"	470 #	5/8"				
1/2"			470 #	5/8"	500 #	1/2"		
5/8"			470 #	5/8"	575 #	5/8"	620 #	3/8"
3/4"					575 #	3/4"	675 #	3/4"

acoustics

sound insulation... The first table at right shows that fir plywood compares favorably with other materials as sound insulation to reduce noise transmitted through walls and ceilings. Sound intensity is measured in decibels, as is sound transmission loss. For instance, noise from a busy street averages 60 decibels, the rustle of leaves 10 decibels. Differences in sound of less than 5 decibels are regarded as insignificant.

sound deadening... Plywood walls have excellent sound absorption properties for deadening noises within a room or building, as indicated by the table of sound absorption coefficients shown at the right. This is of special interest in churches, theatres, auditoriums and offices.

SOUND INSULATION

PARTITION CONSTRUCTION*	Sound Transmission Loss in Decibels
1/4" Fir plywood, both sides	31.1
1/2" Gypsum Plaster, metal lath, both sides	33.2
1/2" Gypsum Plaster, wood lath, both sides	33.4
SINGLE SHEETS**	
1/4" Fir plywood	22.4
1/2" Fibre board A	22.2
1/2" Fibre board B	21.0

SOUND DEADENING

SOUND ABSORPTION COEFFICIENTS

MATERIAL	FREQUENCY CYCLES					
	128	256	512	1024	2048	Avg.
*1/4" Fir plywood on both sides of 2 x 4 studs	.31	.11	.14	.12	.10	.16
*1/4" Fir plywood both sides with 3/4-lb. felt and wallpaper over plywood	.35	.18	.16	.11	.13	.19
***Plaster, gypsum or lime, smooth finish on lath	.02	...	.03	...	.04	.03
***Plaster, gypsum or lime, rough finish wood paneling	.04	...	.06	...	.05	.05
***Linoleum, asphalt, rubber or cork tile on concrete floor	...	...	.03 to .08	...	...	...

*—Dr. Paul E. Sabine, Riverbank Laboratories Geneva Ill.

**—National Bureau of Standards.

***—Acoustical Materials Association Bulletin, June, 1939.

bending panels

In developing curved surfaces with plywood, it often is desirable to install the bent panel first and then fit the flat surface. Use continuous rounded backing to reduce the risk of rupturing plywood. Attach the end of the panel which is to be bent most (a boat bow, for example); then secure the balance of the sheet with clamps or blocks before fastening in place. In fastening, proceed from point of maximum curvature. Thin panels in two layers are often used for critical bends. Shorter radii may be reached by steaming or wetting panels with hot water (use Exterior plywood only), but at greater risk of rupture and possible checking and grain raising. Avoid face patches and short grain in areas of maximum curvature.

APPROXIMATE MINIMUM BENDING RADII






For Fir Plywood

Panel Thickness	Approximate Minimum Radius Across Grain	Approximate Minimum Radius Parallel to Grain
1/4 Inch	15 Inches	24 Inches
3/8 Inch	36 Inches	54 Inches
1/2 Inch	6 Feet	8 Feet
5/8 Inch	8 Feet	10 Feet
3/4 Inch	10 Feet	12 Feet

Note: These average values apply only for areas of clear, straight grain. Occasionally, a panel may rupture at longer radius than indicated above because of wood characteristics (such as short grain) in that particular panel. Where patches are present, radii may be considerably longer.

STRENGTH AND RIGIDITY OF FRAME WALLS

(From U. S. Forest Products Laboratory Tests, Wall with Openings)

SHEATHING MATERIAL		Relative Rigidity	Relative Strength
	1x8" DIAGONAL SHEATHING	1.0	1.3
	29/32" FIBERBOARD (8d nails, spaced 3" at all vertical edges, 5 1/2" to 6" elsewhere.)	1.6	2.1
	HORIZONTAL (1x8 sheathing; 1x4 let in braces; 8d nails, 2 per stud crossing.)	1.5	2.2
	1/4" PLYWOOD NAILED (6d nails spaced 5" at edges, 10" elsewhere.)	2.0	2.8
	1/4" PLYWOOD GLUED TO FRAME	3.7	4.0

Loads are applied laterally in the plane of the test panel.

strength and rigidity

Two fundamental properties establish plywood as a highly superior structural material in wall and roof sheathing and subflooring for houses: 1. The along-the-grain strength of wood is distributed in two directions by the cross-laminated plys. 2. Large panel size.

These properties give plywood sheathing the extra strength and rigidity demonstrated in the table at the left, as determined by the U. S. Forest Products Laboratory. Walls with openings are weakest, but here plywood sheathing's superior resistance to high wind or earthquake damage is doubly valuable (see table). Plywood shear diaphragms contribute extra strength and rigidity to buildings with large wall openings. This allows greater freedom and economy in designing picture windows and eliminating partitions.

INSULATION VALUES

WALL CONSTRUCTION			U=Coefficient of Thermal Transmission in B.t.u.'s/hr./sq. ft./°temp. difference
3/8" Plywood, single sheet			.79
3/4" Plywood, single sheet			.58
1/2" Fibre board, single sheet			.46
Inside Lining	Insulation Between Studs	Outer Wall Materials	
1/4" Plywood		3/8" Ext. Plywood	.40
3/8" Plywood		3/4" Ext. Plywood	.38
1/4" Plywood	1/2" Blanket Insul.	3/8" Ext. Plywood	.19
1/4" Plywood		3/8" Plyscord, furring, siding	.23
1/4" Plywood		3/8" Plyscord, furring, 3/8" Ext. Plyw'd	.26
1/4" Plywood	1/2" Blanket Insul.	3/8" Plyscord, furring, 3/8" Ext. Plyw'd	.15
3/4" Wood Lath & Plaster		3/8" Plyscord, paper, siding	.29
3/4" Wood Lath & Plaster	1/2" Blanket Insul.	3/8" Plyscord, paper, siding	.16

insulation

Fir plywood, like any wood, possesses excellent insulation properties (see table at middle left). It has the same coefficient of heat transmission as Douglas fir proper; that is, 0.78 B.t.u.'s per inch. Actually, 1/8" plywood, plus an air space, has the same insulation value as 1 7/8" "insulation" material.

Plywood panels, with backing at all joints, create true dead air spaces, thus preventing drafts from air infiltration. Further, plywood construction can be designed to meet any extreme requirement by inserting any of the insulation materials. Simple panel construction, using Exterior plywood outside of studs (without sheathing) and plywood inside, usually requires added insulation in the wall except in mild climates.

VAPOR TRANSMISSION PROPERTIES OF FIR PLYWOOD

Values represent the water vapor transmitted through plywood, expressed in grains per sq. ft. per hr., for difference of vapor pressure equivalent to 1" of mercury.

A value less than 1.00 is generally regarded as indicating an efficient vapor barrier material. The lower the value, the more effective the vapor barrier.

Values are from tests or averages of tests at nationally known laboratories, and are in close agreement with similar DFPA laboratory tests.

GRADE AND FINISH OF FIR PLYWOOD	Water Vapor Transmission in Grains/Hr./Sq. Ft./In. Hg.
1/4" INTERIOR, untreated	1.86
1/4" INTERIOR, 1 thin undercoat, 1 coat shellac	0.77
1/4" INTERIOR, 2 coats flat interior paint	1.06
5/16" INTERIOR (Sheathing), untreated	1.80
3/8" EXTERIOR (3 coats)	
1. Standard primer or aluminum primer	0.19
2. Two coats of outside paint	
3/8" EXTERIOR, untreated	0.72

vapor transmission

To prevent condensation: 1—Reduce inside humidity. 2—Use adequate ventilation. 3—Use vapor barriers. Any house needs ventilation, particularly a plywood house since it permits "tight" construction. Gable and cornice louvers vent air from attics before moisture condenses on the roof's cold under surface. Fans or vents take off cooking and bathing moisture.

Crawl spaces vent ground moisture from houses without basements. A vapor barrier spread over the ground also helps.

Interior wall vapor transmission resistance should equal or exceed that of the exterior wall (regardless of material). Coated metallic or impregnated paper vapor barriers between studding and inside walls help prevent condensation. Venting stud spaces to the outdoors is also effective.

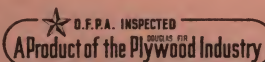
several special panel products have been developed...

by the Douglas fir plywood industry, in recent years... all carrying the industry's emblems of craftsmanship and quality and all finding wide acceptance because they provide individual decorative, structural and surface characteristics plus plywood's proven advantages. These special products include:

resin overlaid plywood, Plyron and Texture One-Eleven, which are described in the adjoining column.

extra-long panels. Oversize fir plywood panels up to 50' long are produced by scarf-jointing standard sizes.

other softwoods. Plywood from other western softwoods include cedar, redwood, Western white pine, spruce, West Coast hemlock and Noble and white firs. Both Exterior and Interior types are manufactured in accordance with U. S. Commercial Standard CS122-49, and may be identified by the registered industry grademarks.



this hallmark indicates product quality and craftsmanship

resin overlaid plywood provides a choice of two types, high and medium density overlays. Smooth, grainless surfaces take paint well; resist abrasion, acids and alkalis; or are impervious to moisture vapor.

high density resin overlays form an excellent vapor barrier. The hard, tough surfaces are as smooth as glass, resist abrasion and chemicals. Translucency varies with different manufacturers' products. High density resin overlaid plywood is generally used without finishing, although it may be painted if desired.

Concrete forms, freezer lockers, drying chambers, lining for refrigerator cars, trucks and trailers, cutting and sorting tables, vats, plating tanks, bins and ducts are excellent examples of applications that take advantage of high density resin overlaid plywood's unique properties.

medium density overlays are opaque and virtually blank out the plywood grain pattern. The smooth, durable surfaces are an unexcelled paint base.

Siding—wide-lapped, board and batten, or flush—gable ends, soffits, outdoor signs, kitchen cabinets, boat decks, bulkheads and cabins, and table tops are only part of the uses that consume tremendous quantities of medium-density resin overlaid plywood.

all resin overlaid panels are Exterior fir plywood with 100% waterproof bond. They meet or exceed the requirements of U. S. Commercial Standard CS45-48. 4'x8' size, and thicknesses of 3/8", 1/2", 5/8" and 3/4" are standard.



Plyron is a composite panel offering the wearing qualities and toughness of tempered or treated hardboards plus a strong, rigid plywood backbone.

Architects, designers and builders have been quick to

adopt Plyron for cabinet doors, wardrobe storages and other built-in units, exterior siding, concrete forms, snag-free table tops in industry and counter tops in stores and restaurants.

a minimum of five plys is required for Plyron construction. Inner plys are of fir veneer and all glue lines conform to the rigid quality standards set by U. S. Commercial Standard CS45-48 (see pp. 4 and 5). The hardboard face plys meet stringent Douglas fir plywood industry performance standards.

interior type Plyron is manufactured with adhesives that are highly moisture-resistant but NOT waterproof.

exterior type Plyron is made with 100% waterproof adhesives suitable for permanent outdoor exposure.

sizes. Panels, 4'x8' in size, are produced in 1/2", 5/8", 3/4" and heavier thicknesses.

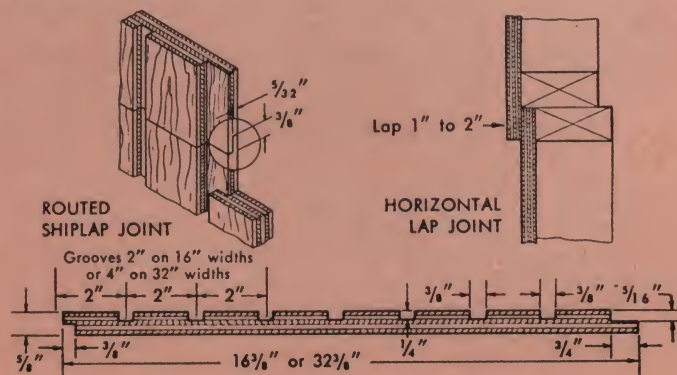


Texture One-Eleven. An exciting new plywood panel that combines line and texture in a pattern of deep parallel grooves, a slightly rough (unsanded) surface and natural wood characteristics such as small knots and knotholes.

its striking appearance suggests Texture One-Eleven for smart vertical siding, soffits, porch ceilings, gable ends, carports, patio enclosures, breezeways, entry walls, fences, store fronts, signs and displays. Routed design increases versatility. Textured surface, when stained, assures lasting beauty with minimum maintenance. Sizes facilitate one-man application yet retain rapid, economical installation of large sheets. Widths fit over standard stud spacing. Shiplapped edges provide tight, "blind" joints without special treatment. Detailed application and finishing instructions are enclosed in each package.

application. Vertical joints are shiplapped so edges of panels do not have to be sealed. Horizontal joints may be shiplapped with a hand router (see drawing).

exterior type fir plywood with 100% waterproof glue (EXT-DFPA), Texture One-Eleven meets U. S. Commercial Standard CS45-48. Widths: 16" (net, plus 3/8" shiplap), grooves 2" o.c.; 32" (net, plus 3/8" shiplap), grooves 4" o.c. Thickness: 5/8-inch, 5-ply construction. Lengths: 8' and 10' standard, shorter lengths also available. Surface: Unsanded (rough) for texture. All plys are C-quality Douglas fir veneer, which permits tight knots up to 1 1/2"; knotholes up to 1"; splits up to 1/8". "C" faces are free from patches or tape. Backs are not grooved.





1. smooth architectural concrete formed against high density resin overlaid plywood



2. wide lapped siding of medium density resin overlaid plywood is ideal paint base



3. Plyron doors and drawer fronts combine economy with ideal surface characteristic



4. remodeling or new building gains modern surface interest from Texture One-Eleven

various styles of siding for houses, schools, warehouses and other commercial buildings...

present the most evident and most dramatic demonstration of plywood's unique advantages.

Plywood makes lap siding in unusual widths possible. It gives speed in application and added strength to accepted architectural styles such as popular board and batten siding. It has stimulated the use of wide expanses of smooth, flush surfaces. Many structural and design innovations that can be used with fir plywood are practical with no other material. Plywood is widely used for gable ends, soffits, porch ceilings and breezeways.

Plyshield is the siding grade of fir plywood. A grade within Exterior type with 100% waterproof adhesives, it is identified by the industry grade-mark, "EXT-DFPA • Plyshield." (See "Grades," pp. 4-5.)

building paper is not needed when Plyshield siding is applied over plywood sheathing; if building paper is specified, it should be a non-vapor barrier type. Use non-corrosive (hot-dipped galvanized or aluminum) nails; 6d box or casing for $\frac{3}{8}$ " and 8d for heavier plywood siding.

panel siding. A minimum thickness of $\frac{3}{8}$ " Plyshield is recommended and required where walls are not sheathed. For economy in certain construction, $\frac{1}{4}$ " can be used.

For single wall construction in warehouses and other commercial buildings, $\frac{1}{2}$ " and thicker Plyshield is used successfully and economically.

lap siding. Use $\frac{3}{8}$ " Plyshield over studs up to 16" o.c. and heavier for greater stud spacing. Bevel the lower edge for drip. Lap at least $1\frac{1}{2}$ ". Butt vertical joints over a shingle and center on a stud unless wood sheathing is used. Nail siding to each stud along bottom edge; space nails not over 4" o.c. at vertical joints. Nails must penetrate studs at least 1" or through wood sheathing. If plywood lap siding is wider than 12", use wood shingle strips at all stud bearings with intermediate vertical nailing spaced no more than 8" o.c. Cover outside corners, or butt against corner molding.

1. Statler Hotel, Los Angeles. Architects: Holabird, Root & Burgee, AIA. Builder: R. E. McKee, General Contractor. 2. Charles Steinbacka, designer and builder. 4. Charles M. Goodman, AIA, architect. 5. Demonstration house built for Popular Mechanics magazine by Tom Riley. John J. Whelan, architect.



5. wide lapped Plyshield siding; Plyscord subflooring, roof and wall sheathing

fir plywood serves in any of three ways to bring speed and economy in floor construction...

and to provide a superior, squeak-free base for finish flooring: 1. Subflooring. 2. Underlayment. 3. Combined subflooring and underlayment. Further, significant new test data (see table, p. 12) show how plywood floors and roofs act as structural members to give extra resistance against earthquakes and windstorms.

Plyscord subfloors are preferred as a smooth, dry, level working platform... as protection against drafts from below... and to provide a horizontal diaphragm to resist earthquakes and high winds; (see "Grades," pp. 4-5). The big 4'x8' panels cover floor areas rapidly and builders report labor savings up to 50% in laying Plyscord subfloors.

finish flooring goes down easier over plywood. Because of its strength, rigidity and dimensional stability, plywood provides a better base for finish flooring. Plywood subfloors require far fewer nails and their smoothness, freedom from joints and excellent nail holding properties are also significant in applying finish flooring. Plywood is dry when laid, so it does not have lumber's reduction in nail-holding power due to seasoning.

little deflection. Without any finish flooring, $\frac{5}{8}$ " Plyscord on joists spaced 16" o.c. will sustain a load of 390 lbs./sq. ft. within the permissible deflection of .04 in. By contrast, residences are designed for only a 40-lb./sq. ft. floor load. Large domestic water heaters impose a load of 420 lbs. on an area of 2 sq. in.; yet 1200 lbs. on a 1" disc is required to break $\frac{1}{2}$ " plywood on joists spaced 16" o.c.

extra savings are gained by using a single thickness of plywood as a combination subfloor and underlayment. Because of the extra strength and stiffness of the panels, such construction gives lasting satisfactory service.

plywood underlayment is standard for linoleum and other coverings in kitchens, bathrooms, utility spaces, work surfaces and tables. For new construction and over worn flooring, smooth Plypanel or Plybase underlayment makes floor coverings go on easier, look better and last longer. See FHA, page 3. (Where moisture is apt to be encountered in kitchens, bathrooms, utility room, etc., and especially on sinks and drainboards, use only waterproof Exterior plywood.)

application. Lay plywood subflooring with face grain of the panel across the joists to provide maximum stiffness. Use 8d common nails for $\frac{5}{8}$ " plywood (6d common for $\frac{1}{2}$ " thickness); nail at 6" centers at panel edges and 10" o.c. on other bearings. If finish floor is to be resilient, set nails slightly to avert show-through when green joists shrink. Usually, installation is over joists 16" o.c.; but joist spacing up to 24" is practicable with completely satisfactory results even with $\frac{1}{2}$ " plywood when 25/32" strip finish floor is used. For underlayment, ring-barbed or cement coated nails are preferred. Space 6" on edges, 8" each way throughout panel.

re-use of forms. Many builders use $\frac{5}{8}$ " Plyscord first to form smooth base-ment concrete walls and then re-use the panels as subflooring, roof sheathing or wall sheathing. Glue bond in Plyscord is highly moisture-resistant, although NOT waterproof, and will easily withstand initial use as forms as well as occasional wetting during construction.

grade data. Specify unsanded Plyscord for subflooring. As underlayment or combination subflooring and underlayment, use Plypanel or Plybase. See floor construction details on this page.

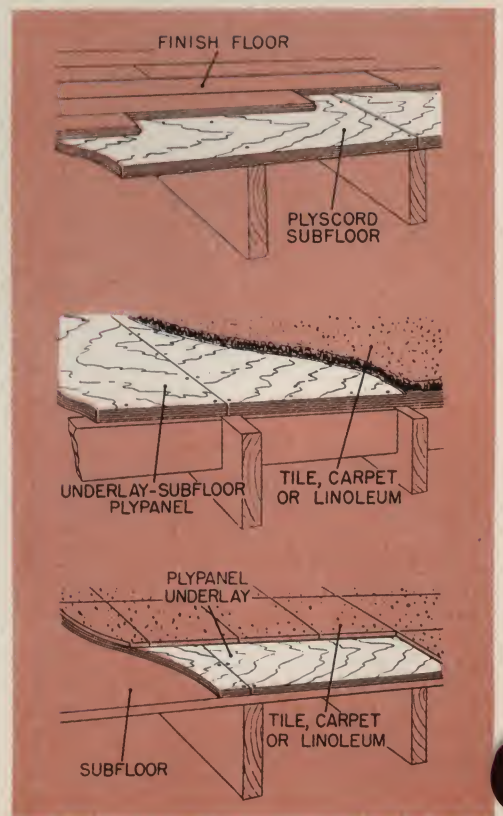
1. Demonstration house built for Popular Mechanics magazine by Tom Riley. John J. Whelan, architect. 2. Richard Sundeleaf, AIA, architect.



1. Plyscord for concrete forms is re-used in subfloors



2. Plyscord subflooring makes rigid, draft-free floors



wall sheathing applications take full advantage of fir plywood's unique characteristics

Plyscord is the unsanded wall sheathing grade; (see pp. 4 and 5). As known for many years, plywood provides more than twice the relative strength of other common sheathing materials. (See comparative table, p. 7. Data on plywood diaphragms, p. 12, also apply to wall sections.)

The rigidity chart on p. 7 shows that plywood more than doubles the rigidity and strength secured from diagonal sheathing. Plyscord sheathing eliminates the need for costly corner bracing, which may be omitted in meeting FHA requirements; (see FHA p. 3.)

contractors report savings of more than 25% in placing Plyscord wall sheathing. The big, lightweight panels each cover 32 square feet. Savings in application time increase with experience.

Less material is required because plywood panels are exact, full size and there is a minimum of cutting. The few small pieces which may be cut off are readily usable on the job with normal waste of only 5% maximum.

plywood offers insulation values two ways. Plywood sheathed walls are tight and draft-free, contributing to the house's warmth. Insulation values of all-plywood walls and plywood in combination with other materials are recorded in the chart on p. 7. No building paper is needed with plywood-sheathed walls except behind brick veneer, stucco and asbestos shingles, but if used should be non-vapor barrier type.

application. Minimum Plyscord wall sheathing thicknesses are $\frac{1}{8}$ " for 16" stud spacing and $\frac{3}{8}$ " for 24" stud spacing. Install with face grain either parallel or across the studs, but the latter method gives extra stiffness. Use 6d common nails for $\frac{1}{8}$ ", $\frac{3}{8}$ " and $\frac{1}{2}$ " Plyscord and 8d common for $\frac{5}{8}$ " thickness. Space nails not more than 6" o.c. at edges of panels and 12" o.c. on other bearings.

Cover large, unbroken areas first, when sheathing with Plyscord, to speed the job and save labor.

As in construction with any material, guard against condensation within the wall through proper design detail regarding ventilation and use of a vapor barrier on the warm side of the wall, if necessary; (see "Vapor Transmission," p. 7.)

plywood backing. Plywood is a superior backing for every type of wall material.

For rigid facing materials, Plyscord is most economical; for wall-paper and similar backing, use non-aqueous cement and select one of the sanded plywood grades. Wherever considerable moisture is likely, as around showers, and drainboards, specify Exterior type plywood; (see "Grades," pp. 4-5.)

1. Charles Steinbacka, architect. 2. Frank Rummel, architect; Witte & O'Flynn, builders. 3. Lea, Pearson & Richards, AIA, architects; Korsmo Bros., builders. 4. Richard Sundeleaf, AIA, architect.



1. Plyscord wall sheathing covers large areas fast



2. tight construction with Plyscord adds comfort



3. Plyscord makes an ideal base for any siding material



4. rigid Plyscord sheathing resists racking by winds

efforts of architects and builders to increase strength and reduce labor costs

emphasize plywood's superior structural properties as roof sheathing. Plyscord is the roof sheathing grade of plywood; (see "Grades," pp. 4-5.)

builders cut the in-place costs of roof decks more than 25% with Plyscord because its large, light panels cover wide areas quickly. Total labor and material costs are cut still further by the added stiffness and strength that permit 24" rafter spacing on roofs with $\frac{3}{8}$ " and thicker Plyscord sheathing. (See "Recommended Thickness" table, this page, and FHA, p. 3.)

Roofing materials go on faster and nail better with solid plywood roof decking. Roofing also stays better looking, lasts longer on plywood's smooth, rigid surface which is dimensionally stable—an additional saving on long-range expense. Damage from updrafts is eliminated by freedom from joints. Plywood's exceptional nail-holding properties are another big factor in securing long roofing service at minimum cost.

In actual use and laboratory tests, $\frac{5}{8}$ " Plyscord repeatedly has shown nail-holding capacity that equals or exceeds 1" soft pine boards commonly used for roof sheathing. Invariably, asphalt shingles can be torn from $\frac{5}{8}$ " Plyscord roof sheathing without loosening the nails.

application. Install Plyscord roof sheathing with grain of face plys across rafters. Use 6d common nails for $\frac{5}{8}$ ", $\frac{3}{8}$ " and $\frac{1}{2}$ " Plyscord and 8d common for $\frac{5}{8}$ " panels. Space nails not more than 6" o.c. at panel edges and 12" on other bearings. Protect Plyscord edges from direct exposure to the weather at exposed eaves, cornices and rakes by a starter strip of Exterior plywood, lumber or flashing.

Special ring-barbed nails have been found suitable for attaching asbestos shingles to $\frac{5}{8}$ " Plyscord.

Take normal precautions to ventilate attics properly; (see "Vapor Transmission, p. 7. See also "roof sheathing," "FHA and plywood," p. 3.)

Recommended thicknesses for Plyscord roof sheathing on various rafter spacings are given in the table at right. NOTE: $\frac{3}{4}$ " plywood on roof supports spaced 48" o.c. produces exceptional economy; such construction has been accepted by the FHA office in Washington, D. C., upon request from field offices.

RECOMMENDED THICKNESS FOR PLYSCORD ROOF SHEATHING

(Plywood Continuous Over 2 or More Spans; Grain of Face Plys Across Rafters)

Plywood Thickness	Max. Spacing of Supports, c. to c., in.		
	20 psf	30 psf	40 psf
$\frac{5}{8}$ " rough. . . .	20 (1)	20	20
$\frac{3}{8}$ " rough. . . .	24 (1)	24	24
$\frac{1}{2}$ " rough (2). . .	32 (1)	32	30
$\frac{5}{8}$ " rough (2). . .	42 (1)	42	39
$\frac{3}{4}$ " (2)	48 (1)	47	42

(1) It is recommended that these spans shall not be exceeded for any load condition because of possible effect of concentrated loading.

(2) Provide blocking or other suitable edge support when span exceeds 28 inches for $\frac{1}{2}$ "; 32 inches for $\frac{5}{8}$ "; and 36 inches for $\frac{3}{4}$ ".

Note: For special case of two span continuous beams, plywood spans can be increased 6 1/2% except as noted under (1), above.

For deflection limited to 1/240 of span.



Plyscord roof decking cuts costs; roofing lasts longer

designing to resist earthquakes

Laboratory and field tests have provided new design data showing that plywood diaphragms act as giant sections of a girder. Slight design changes turn conventional frame roofs, walls or floors into structural diaphragms capable of resisting shear loads in the plane of the diaphragm, thus eliminating any need for expensive lateral and knee bracing. Now extreme lateral loads (as from hurricanes and earthquakes) can be provided for at a cost lower than by any other common construction method.

Developed to help engineers design plywood-sheathed diaphragms in roofs and floors of commercial buildings, schools and warehouses, this information is equally important in residential design.

The popularity of large wall openings for picture windows and houses without load-bearing partitions makes these properties especially useful.

Plywood's high resistance to shear has been proved by more than 16 years' experience of competent builders. It has also been accepted by nationally recognized building codes. For detailed test data "How to design plywood panels for buildings," write to Douglas Fir Plywood Association.

ALLOWABLE LATERAL LOADING ON PLYWOOD DIAPHRAGMS*

Nail Spacing.	Shear loads for framing members less than 2 1/4" wide, but not less than 1 1/4". (Lb.-per-foot width.)			Shear loads for 2 1/4" or wider framing members. (Lb.-per-foot width.)		
	6"	4"	3"	6"	4"	3"
$\frac{5}{8}$ " and $\frac{3}{8}$ " plywood, 6d common nails	165	250	280	185	280	315
$\frac{3}{8}$ ", $\frac{1}{2}$ " and $\frac{5}{8}$ " plywood, 8d common nails	240	355	405	265	400	450
$\frac{1}{2}$ " and $\frac{3}{4}$ " plywood, 10d common nails.	285	425	485	320	480	545

NOTES: Tabulated shears shall be reduced one-fourth for other than wind or seismic loads. Table is for Douglas fir and southern pine framing; for other species, values should be adjusted. Diaphragm width is measured parallel with the load.

*Adapted from the Uniform Building Code of the Pacific Coast Building Officials' Conference.

**organized, uncluttered
living demands
adequate built-in
conveniences**

In small houses, organized, uncluttered living calls for maximum use of cubic content to achieve "equivalent space" and to save time and work.

Smart, attractive, inexpensive plywood built-ins add value to limited space, since plywood invites fresh design and meets today's needs.

grade suggestions; (see "Grades," pp. 4-5.) In general, use Plypanel grade when only one surface is to be in view, as for facings, backs, ends, linings and drawer bottoms. Select Interior A-A, or the alternate A-B grade, when both surfaces are exposed . . . for doors, single thickness wall sections, etc. For utility, use unsanded Plyscord for backing, structural parts, padded seats, etc.

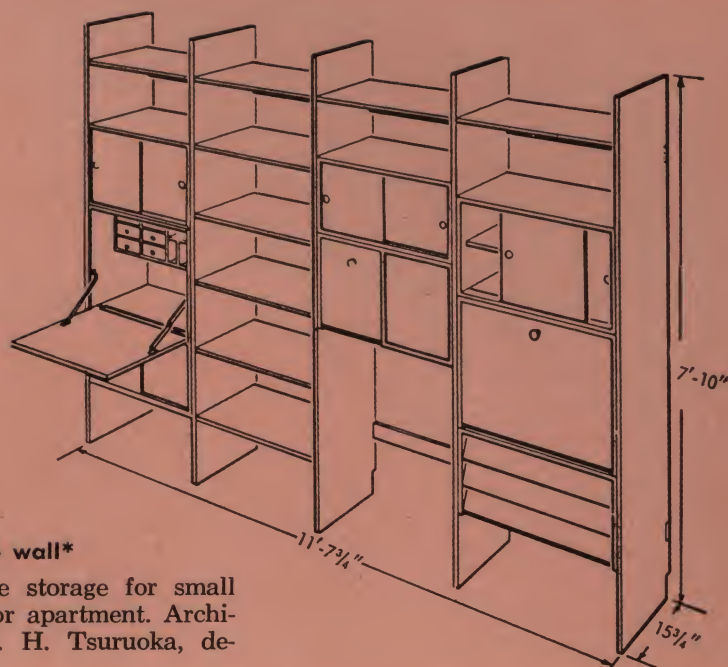
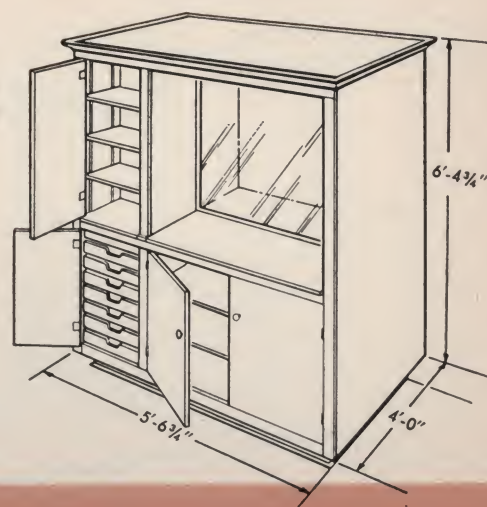
Wherever water may be encountered, as for counters around kitchen sinks or built-ins for bathrooms and utility rooms, make certain only Exterior plywood with waterproof bond is used. Also specify Exterior plywood for all outdoor furniture and storage facilities. For appearance, Plyshield will be suitable in most cases; resin overlaid plywood in others.

Select hardware suitable for plywood. Do not attempt to screw into plywood edges. Paint both sides of cabinet doors with an equal number of coats. Gluing plywood at joints results in extra strength and rigidity.

finishing—(see p. 17.)

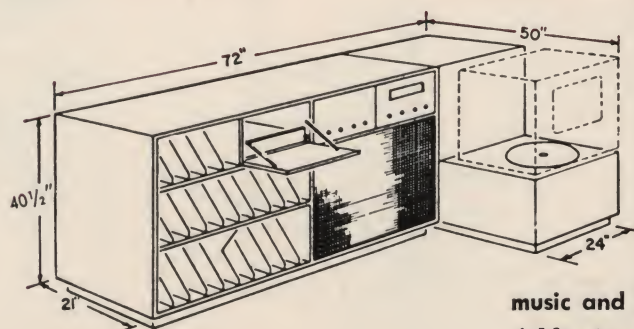
island entry wall*

Extra storage space separates living and entry areas. A. B. Hansen, of *American Builder*, designer.



storage wall*

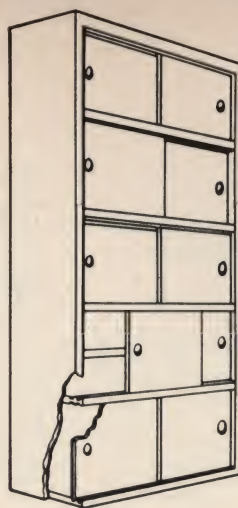
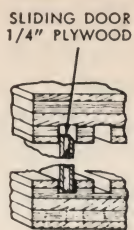
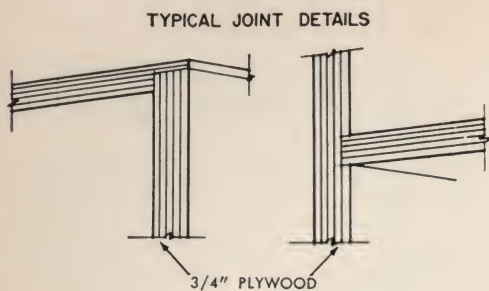
Flexible storage for small home or apartment. Architect G. H. Tsuruoka, designer.



music and tv-center*

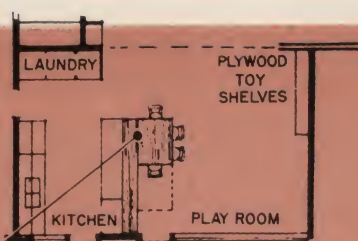
Adds to listening enjoyment, eliminates clutter. Designed by Woman's Home Companion.

*plans available on request from DFPA



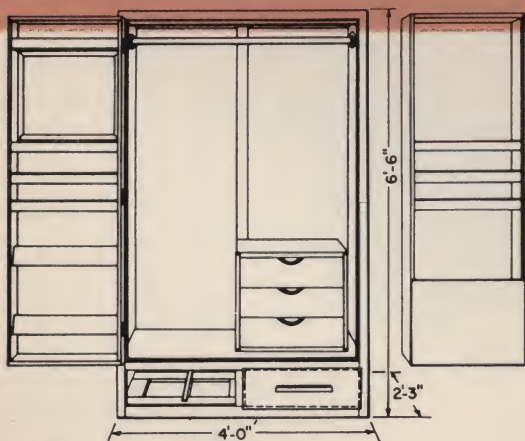
odds and ends cabinet*

Handy for utility room, workshop, kitchen, or in waste space above bathroom water closet.



kitchen storage

Convenient half-high storage wall. Paul E. Tay, Long Beach, California, designer.



shelf-door wardrobe*

Prize-winning built-in virtually doubles closet space. Designed by Edward Hansen, Stillwater, Minnesota.



bedroom closet

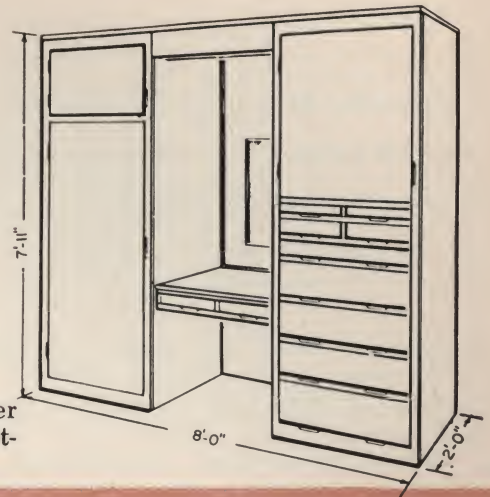
Built-in wardrobe accommodates a man's needs. Design by Architect J. J. Roberto and Carolyn Roberto.

*plans available on request from DFPA

Size and number of tables and chairs determine dimensions of this unit, which includes swing-out rack. Space design for household storage by Helen E. McCullough, Asst. Prof. Home Economics, University of Illinois, Agricultural Experiment Station.



TYPICAL DRAWER CONSTRUCTION

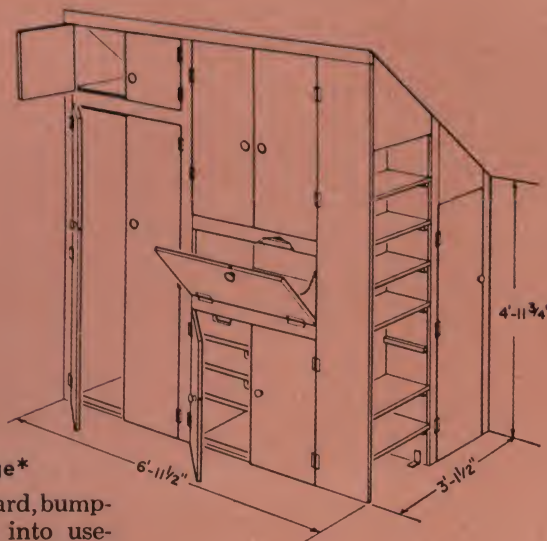
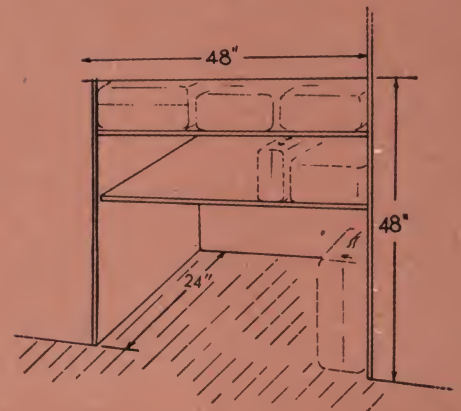


child's storage wall*

Combines closet, dresser and toy storage in one attractive unit.

luggage unit

Two adjustable shelves; accommodates eight typical pieces. Space design for household storage by Helen E. McCullough, University of Illinois Agricultural Experiment Station.

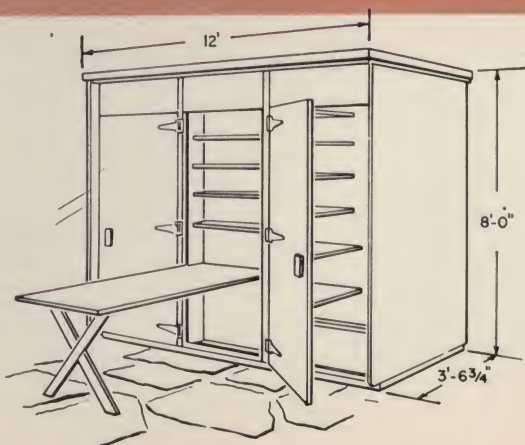
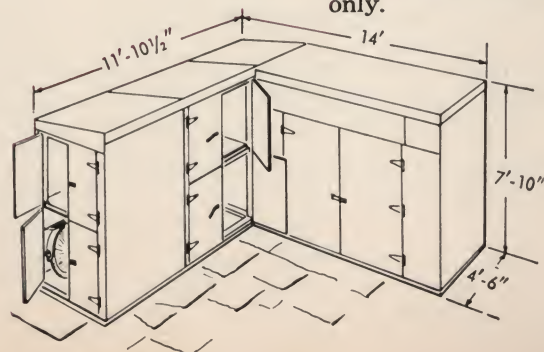


under-eave storage*

Transforms awkward, bump-head attic space into usefulness. Developed by Iowa State College Extension Service.

outdoor storage port*

Holds everything from family car to trowel. Can be carport or built free-standing. Use Exterior plywood only.



outdoor storage wall*

Can be free-standing or attached to house or garage. Use Exterior plywood only.

*plans available on request from DFPA

warmth. Mellow luxury. The charm and distinction of the natural grain patterns in real wood

All these are gained with interior walls, ceilings and partitions paneled with fir plywood.

Plywood combines these decorative virtues with structural capabilities second to none. Certainly no phase of construction takes advantage of plywood's twin usefulness with more outstanding results.

Further, plywood paneling is easily and economically applied. It reduces maintenance to a minimum, which accounts for its popularity for schools. Plywood walls, ceilings and partitions also afford the "Dri-Bilt with plywood" method of construction which speeds building.

plywood walls may be finished in a light stain-glaze or painted. They also make an excellent wallpaper base. Plywood walls are highly durable and add remarkable rigidity to the structure as well as possessing excellent acoustical and insulation properties. Plywood walls are, of course, puncture-proof against all ordinary hazards.

Plypanel is the fir plywood paneling grade; (see "Grades," pp. 4-5.)

application. For better wall construction, $\frac{3}{8}$ " panels are recommended over studs 16" o.c. Install either vertically or horizontally, but the latter provides extra rigidity. Backing at horizontal (as well as vertical) joint is recommended and usually is provided by firestop. Three-eighth-inch panels are fastened with 6d finish or casing nails, spaced 6" o.c., $\frac{1}{4}$ " panels (used for economy) are installed with 4d finish nails.

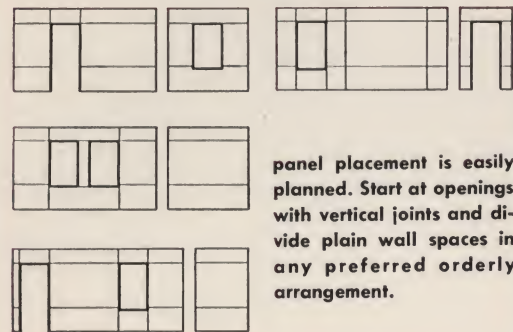
Whenever the distinctive grain pattern of Plypanel is to be preserved, select panels for pattern and appearance prior to installation to assure the most pleasing over-all effect; (see "Grades," pp. 4-5.) Paneled interiors, with joints accentuated, contribute to pleasant, distinctive surroundings when walls and ceilings are painted.

vee grooves can simulate narrower paneling or develop designs on the panel face and disguise joints. Lapping panels is effective in many cases.

1. Smith & Williams, architects; Ben Clarke, owner. 2. Willard Hall Francis, architect-owner.



1. plywood paneling reduces upkeep to a minimum



panel placement is easily planned. Start at openings with vertical joints and divide plain wall spaces in any preferred orderly arrangement.



2. Plypanel walls make warm, friendly rooms

exterior finishing

general data. Field observations, exposure fence studies and weatherometer tests all indicate that the best paint job for regular wood siding also is the best for Exterior fir plywood. The high grade exterior house paints of either TLZ (titanium-lead-zinc) formulation or white lead and oil give excellent service on plywood. The TLZ paints tend to have more lasting appearance qualities. Avoid paints which set to a hard, brittle film.

For complete compatibility between coats, specify prime and finish coats produced by the same manufacturer and formulated as companion products. Allow each coat to dry before the following coat is applied, but painting should be completed as soon as practicable to obtain good adhesion between coats.

edge sealing. Prior to erection, seal all edges with a heavy application of a high-grade exterior house primer, aluminum paint or heavy lead and oil paint. (FHA recommendations for paint for sealing edges are: 100 lbs. white lead paste, 1¾ gal. raw linseed oil and 1 pt. dryer, mixed and applied without thinning. This applies alike to exposed edges (if any) and edges of panels that are lapped, butted or covered with moldings.)

back priming. In unusually damp locations the panels should be back primed with a coat of exterior house primer.

painting procedure. The three-coat system is suggested as providing the best conventional protective coating.

1. **The initial or prime coat is most important!** A high grade exterior primer, thinned with 1 pt. of pure raw linseed oil per gal. of paint and brushed on is recommended. Also an aluminum primer, compounded from aluminum paste and top quality long oil spar varnish, makes an excellent primer; about 1¾ lbs. paste or powder in 1 gal. of varnish, mixed just before application to obtain optimum leafing characteristics. Greater opacity of finish coats may be required, however, to completely mask aluminum primer.

2. and 3. Over the primer, apply the second and third paint coats according to the paint manufacturer's directions.

other finishes. The top quality 2-coat TLZ house paints have been found to perform satisfactorily. However, the same dry film thickness as the three-coat system is necessary. First apply a high grade exterior primer thinned with at least 1 pt. of pure raw linseed oil per gal. of paint applied with a brush. Over primer apply the second coat according to manufacturer's directions.

Textured finishes, using oil or synthetic resin base paints containing mineral particles, asbestos fiber, etc., as part of the pigment have proved popular and generally satisfactory. Stains, when applied to plywood, fail to provide a protective film; therefore, face checking may be expected. (The permanent waterproof bond between plys, of course, remain unaffected.) Natural finishes usually require extra maintenance.

marine uses. On plywood boats, very satisfactory paint finishes are obtained by using high-grade marine primers, undercoats and finish coats. Seal edges and prime plywood well; for proper adhesion, be sure all paint coats are completely compatible. Finishes which retain some flexibility give best results.

interior finishing

light stain-glaze. Simple, yet attractive light stain-glaze finishes for Plypanel walls have been developed. The procedure subdues the grain contrast yet preserves the natural beauty of the wood. Before being installed, panels should be selected for pattern and appearance. The basic finishing steps follow:

1. To whiten panel: A coat of interior white undercoat thinned 1 part undercoat to 1 part turpentine or painter's thinner. This may be wiped with a rag or dry-brushed for more grain

show-through. When dry, sand lightly with fine sandpaper.

2. To seal wood: One coat of thinned white shellac or clear resin sealer (this seal coat may be thinned more or omitted if greater color penetration is desired). Sand lightly with fine sandpaper when dry.

3. To provide color: One color coat. This may be interior undercoat or enamel, thinned as for step No. 1, or color in blending oils. Light stains might also be used. The color coat is applied thinly and wiped or dry-brushed to proper color tone. When dry, sand lightly with fine sandpaper.

4. For wearing surface: One coat flat varnish. For best effect, the varnish may be steel-wooled.

A limitless variety of colors and shades may be obtained by changing the color coat.

paint finishes. Conventional wall and woodwork paints may be used successfully on plywood walls or built-in conveniences. Best results are obtained when the panels are primed well and high grade paints used. Before water thinned paints are applied, the plywood should first be sealed with a clear resin sealer, shellac or a flat white paint. For textured surfaces, prime with regular undercoat followed by a heavy coat of stippling paint.

economical finishes. An inexpensive but pleasant "blond" finish can be obtained using an easy two-step procedure. First, a coat of interior white undercoat thinned so the wood pattern shows through; the undercoat may be tinted if color is desired. Then, a coat of clear shellac, lacquer or flat varnish to add durability.

Attractive and economical one-coat stain-wax finishes in various colors are marketed by a number of manufacturers. When using conventional stain on fir plywood, first apply clear resin sealer, or thinned white shellac to subdue contrast.

enameled walls. The very best possible results may be obtained by first covering the smooth Plypanel with painter's canvas or inexpensive unbleached muslin. Follow these steps: Fill nail holes or hammer marks and joints with Swedish putty, using plasterer's trowel. Prime wood with thin flat white oil paint. Hang muslin as wallpaper with regular wallpaper paste, strained to remove lumps. When dry, apply coat of glue size. Over this any conventional finish can be applied with beautiful results.

wallpaper. Panels should be closely butted, primed with a thin flat white paint, and joints filled with Swedish putty. Coat surface with a wheat flour paste to which has been added a gelatin glue size. Over the plywood, apply smooth wall liner, blank stock or smooth ¾-lb. deadening felt treated with the same paste and size. The wall liner, blank stock, or building felt, should be butted neatly and rolled smooth. Then, the wallpaper is hung in accordance with standard practice.



plywood finishes beautifully in all colors

**no development
in the construction field
has been more widely
or quickly adopted
than the use of plywood
concrete forms**

The reasons why plywood has become the universal form material are found in its inherent advantages.

plywood combines both form sheathing and lining in one versatile material. It produces concrete surfaces of even-textured smoothness and uniformity. It meets the specialized requirements of concrete form work at lowest possible cost... saving time, labor, and material.

Contractors have reported 12 to 15 re-uses of Interior Plyform forms when properly cared for and an even greater number of re-uses for Exterior Plyform forms.

erection and stripping are easier and speedier because of Plyform's light weight and large size panels. Joints and fins are reduced to a minimum. For example, the total length of joint lines in a 12'x40' wall is reduced from 1000 ft. if 6" boards are used to only 128 ft. with 4'x8' Plyform.

Plyform cuts costs and solves form problems for architects, engineers, builders and contractors. It answers concrete form problems whether the design calls for smooth architectural concrete, ceilings smooth enough for direct painting, heavy construction where re-use of forms is paramount, or in every day concrete jobs both large and small.

grade data. The most commonly used grade for concrete forms is Plyform; (see "Grades," pp. 4-5). Plyform is made in two types: Exterior Plyform with a completely waterproof bond more durable than the wood; and Interior Plyform, made with improved glues which, while NOT permanently waterproof, will resist numerous wettings.

Exterior Plyform: Bonded with 100% waterproof phenolic resin adhesives. Should be specified where forms will be re-used until the wood itself is literally worn away, or under excessively humid or other

(continued on page 19)

1. Leonard Schultze & Associates, AIA, architects; Starrett Bros. & Eken, Inc., builders; Metropolitan Life Insurance Co., owner. 2. Stiles Clements, AIA, Associated Architects and Engineers; William Simpson Construction Co., contractor. 3. George Stoddard & Associates, AIA, architects; Strand & Son, contractor.



1. after 13 re-uses, Exterior Plyform concrete forms served up to 8 more times on 2-story buildings in 1700-family Parkmerced development



2. Plyform gave "smooth, fin-free concrete, ease of handling and over-all job economy" on Carnation Company's new western headquarters



3. U. of Washington stadium demonstrates plywood's versatility. 1/4" plywood form liner bent by wedging between wales and studs



1. built-up plywood slip forms in 90' and 120' sections gave 8-10 re-uses on six Lever Bros. plant buildings, Los Angeles



2. plywood speeded construction, cut labor costs, produced smooth concrete surfaces on Whitman Elementary School, Tacoma



3. ten re-uses were secured on intricate plywood forms for double-decked Alaskan Way viaduct, Seattle

extreme use- or storage-conditions. Faces are of "B" veneer which is smooth and solid (small tight knots and circular repair plugs permitted) to provide smooth concrete surfaces. Sanded both sides. Unless otherwise specified, faces are mill-oiled.

Originally, Exterior Plyform was called "Exterior Concrete Form" grade. Many mills seal panel edges with distinctive red sealer, but the positive identification is the registered "EXT-DFPA PLYFORM" trademark branded in the panel edge and the diamond-bar trademark shown here stamped on the back of the panel.

Interior Plyform: Made with newly fortified glues that are highly moisture-resistant (though NOT permanently waterproof) for multiple re-use. Should be specified when maximum re-use is not required. With exception of its glue-lines, Interior Plyform is identical in construction and face-ply characteristics with Exterior Plyform. Sanded both sides. Edge-sealed with distinctive green sealer. Unless otherwise specified, faces are mill-oiled. Identified by diamond face-stamp shown on p. 5. To meet certain conditions, panels having "A" faces are chosen.

resin overlaid and hardboard faced plywood: The new overlaid plywood materials are being used with outstanding success on construction requiring the best possible appearance of the concrete surface or when the maximum number of re-uses is desired. Use examples include finest architectural concrete and quality apartment construction. Concrete ceilings poured against resin overlaid plywood can be so smooth that painting is the only finish required. Resin overlaid panels are Exterior plywood bonded with waterproof adhesives and have the added features of the special smooth, abrasion-resistant surfaces. Plyron, the hardboard faced plywood, is made in both Exterior and Interior types; (see p. 8).

1. Designers and builders: Bechtol Corp. Architectural consultants: Welton Becket & Associates, AIA. 2. Lea, Pearson & Richards, AIA, architects; Standard Construction Co., builder. 3. Washington State Highway Dept., W. A. Bugge, director, designers; Morrison-Knudsen Co., Inc., builder.

Plyform Thickness	Stud Spacing	Deflection Permissible	Load
5/8"	12"	1/270 of Span	880 lbs./sq. ft.
5/8"	16"	1/270 of Span	375 " "
3/4"	12"	1/270 of Span	1,330 " "
3/4"	16"	1/270 of Span	560 " "
5/8"	12"	1/360 of Span	660 " "
3/4"	16"	1/360 of Span	420 " "

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